

CLAIMS

What is claimed is:

1. An implantable prophylactic pacemaker/defibrillation device for delivering defibrillation shocks in response to only a single episode of ventricular fibrillation, the device comprising:
 - pacing pulse generation circuitry;
 - defibrillation shock generation circuitry including a shock capacitor;
 - a first power source operative to provide power for the pacing pulse generation circuitry; and
 - a second power source operative to provide power for the defibrillation shock generation circuitry, the second power source configured to provide sufficient power for delivering defibrillation shocks only in response to the single episode of ventricular fibrillation; withthe defibrillation shock generation circuitry including non-reformation-based charging circuitry operative to charge the shock capacitor using the second power source for delivering the defibrillation shocks without prior capacitor reformation.
2. The implantable device of claim 1 wherein the capacitor is a tantalum capacitor.
3. The implantable device of claim 1 wherein the capacitor is an aluminum oxide capacitor.
4. The implantable device of claim 1 wherein the defibrillation shock generation circuitry and the second power source are configured to

slowly charge the capacitor over a period of time not less than 11 seconds prior to delivery of a first defibrillation shock.

5. The implantable device of claim 1 configured to be capable of delivering up to six defibrillation shocks in response to the single episode of ventricular fibrillation.

6. The implantable device of claim 1 wherein the individual defibrillation shocks have energies in the range of 10 - 40 joules.

7. The implantable device of claim 1 wherein:
the first power source is a low rate, long life power source; and
the second power source is a high rate, short life power source.

8. The implantable device of claim 7 wherein:
the first power source is a polycarbon monofluoride (CF_x) power source; and
the second power source is a lithium manganese dioxide (LiMnO_2) power source.

9. The implantable device of claim 1 further comprising control circuitry operative to control the pacing pulse generation circuitry and the defibrillation shock generation circuitry and wherein the first power source additionally provides power for the control circuitry.

10. The implantable device of claim 1 wherein the defibrillation shock generation circuitry is selectively coupled to a right ventricular coil electrode and a device housing electrode for delivering a ventricular defibrillation shock to the heart of a patient.

11. The implantable device of claim 10 wherein the pacing pulse generation circuitry is selectively coupled to ventricular tip and ring

electrodes and right atrial tip and ring electrodes for delivering pacing pulses to the heart of the patient.

12. The implantable device of claim 11 wherein shunt diodes interconnect the right ventricular tip and ring electrodes and right atrial tip and ring electrodes, respectively.

13. The implantable device of claim 11 wherein the defibrillation shock generation circuitry and the pacing pulse generation circuitry are operative to hold the ventricular and atrial ring electrodes at a voltage equal to that of the right ventricular coil.

14. The implantable device of claim 10 wherein the pacing pulse generation circuitry is selectively coupled to a ventricular tip electrode and the pacing pulse generation circuitry is operative to deliver pacing pulses to the right ventricular between the right ventricular tip electrode and the right ventricular coil.

15. The implantable device of claim 10 wherein the defibrillation shock generation circuitry is also selectively coupled to a superior vena cava (SVC) electrode for use in delivering defibrillation shocks in combination with the right ventricular coil.

16. The implantable device of claim 15 wherein the SVC electrode is hard-connected to the device.

17. An implantable prophylactic pacemaker/defibrillation device for delivering defibrillation shocks in response to only a single episode of ventricular fibrillation, the device comprising:

pacing pulse generation circuitry; and

defibrillation shock generation circuitry;

wherein the defibrillation shock generation circuitry is selectively coupled to a right ventricular coil electrode and a device

housing electrode for delivering a ventricular defibrillation shock to the heart of a patient;
wherein the pacing pulse generation circuitry is selectively coupled to ventricular tip and ring electrodes and right atrial tip and ring electrodes for delivering pacing pulses to the heart of the patient; and
wherein shunt diodes interconnect the right ventricular tip and ring electrodes and right atrial tip and ring electrodes, respectively.

18. The implantable device of claim 17 wherein the defibrillation shock generation circuitry and the pacing pulse generation circuitry are operative to hold the ventricular and atrial ring electrodes at a voltage equal to that of the right ventricular coil.

19. The implantable device of claim 17 wherein the defibrillation shock generation circuitry is also selectively coupled to a superior vena cava (SVC) electrode for use in delivering defibrillation shocks in combination with the right ventricular coil.

20. The implantable device of claim 19 wherein the SVC electrode is hard-connected to the device.

21. A method for delivering ventricular defibrillation therapy using implantable medical devices, the method comprising the steps of:
implanting a prophylactic ventricular defibrillator having power source configured to provide power for generating defibrillation shocks using a shock capacitor in response only one episode of ventricular fibrillation; and
detecting an arrhythmia requiring delivery of a defibrillation shock and, in response thereto, delivering up to six defibrillation

shocks using the shock capacitor without any prior reformation of the capacitor.

22. In an implantable cardiac stimulation device having a shocking capacitor for storing charge for delivering a defibrillation shock, an improvement comprising:

implementing the shocking capacitor as an aluminum oxide capacitor without circuitry for reforming the aluminum oxide capacitor.